



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/598,574

03/19/2007

Roberto Magri

4015-5834

7319

24112 7590 09/24/2009
COATS & BENNETT, PLLC
1400 Crescent Green, Suite 300
Cary, NC 27518

EXAMINER

CURS, NATHAN M

ART UNIT

PAPER NUMBER

2613

MAIL DATE

DELIVERY MODE

09/24/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|-------------------------------------|--|
| Office Action Summary | Application No. 10/598,574 | Applicant(s) MAGRI ET AL. | |
| | Examiner NATHAN M. CURS | Art Unit 2613 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period **will** apply and **will** expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply **will**, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 March 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9-06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 8-10, 12-14 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Caprino et al. ("Caprino") (WO 02/080409) in view of Arecco et al. ("Arecco") (US Patent Application Publication No. 2003/0194232).

Regarding claim 8, Caprino discloses an optical add/drop amplification node configured to communicatively interconnect first and second optical fiber spans in an optical telecommunications system (fig. 1 and page 4 lines 17-22), the node comprising: a channel add/drop device (fig. 1 element 15 and page 4 line 27 to page 5 line 4); an output amplifier coupled to an output of the channel add/drop device (fig. 1 element 16 and page 5 lines 2-4); a first input amplifier communicatively coupled between the first optical fiber span and an input of the channel add/drop device, and configured to output optical signals at a substantially constant output power, such that an output power of

Art Unit: 2613

amplified spontaneous emission (ASE) noise produced by the first input amplifier compensates for a loss of signal power due to a break in the first optical fiber span (fig. 1 element 13 and page 4 lines 23-25 and page 5 lines 20-29). Caprino does not disclose a second input amplifier configured to generate the compensating ASE noise responsive to a failure of the first input amplifier. Arecco discloses using amplifiers in an optical communication system, including parallel switched amplifier paths, and switching to the backup second amplifier path when there is a failure in a first amplifier path (fig. 2 and paragraphs 0126-0134 in light of fig. 1 and paragraphs 0069-0074). It would have been obvious to one of ordinary skill in the art at the time of the invention to duplicate the first input amplifier of Caprino as a backup second amplifier using a switch configuration like that of Arecco, to provide the benefit of continued constant output power when there is a failure of the first input amplifier.

Regarding claim 9, the combination of Caprino and Arecco discloses the optical add/drop amplification node of claim 8 wherein the second input amplifier is coupled to the first input amplifier (Arecco: fig. 2, as applicable in the combination, where the amplifiers are coupled in parallel), and is configured to generate the compensating ASE noise responsive to detecting the failure of the first input amplifier (Caprino: fig. 1 and Arecco: fig. 2, as applicable in the combination, where the duplicated amplifier in the backup branch of the combination functions like the first input amplifier after the switch).

Regarding claim 10, the combination of Caprino and Arecco discloses the optical add/drop amplification node of claim 9 wherein the second input amplifier is coupled to

switch on responsive to detecting the failure of the first input amplifier (Arecco: paragraph 0069, as applicable in the combination).

Regarding claim 12, the combination of Caprino and Arecco discloses the optical add/drop amplification node of claim 10 wherein the second input amplifier is configured to generate the compensating ASE noise at substantially the same constant output power as the first input amplifier prior to the failure of the first input amplifier (Caprino: fig. 1 and Arecco: fig. 2, as applicable in the combination, where the duplicated amplifier in the backup branch of the combination functions like the first amplifier after switch).

Regarding claim 13, the combination of Caprino and Arecco discloses the optical add/drop amplification node of claim 8 wherein the channel add/drop device comprises an Optical Add/Drop Multiplexer (OADM) device (Caprino: fig. 1 element 16).

Regarding claim 14, Caprino discloses a method of maintaining channels added at an optical add/drop amplification node disposed between first and second optical fiber spans in an optical telecommunications system (fig. 1 and page 1 lines 5-8 and page 4 lines 17-22), the method comprising: outputting amplified spontaneous emission (ASE) noise from a first input amplifier, such that an output power of the ASE noise compensates for a loss of signal power due to a break in the first optical fiber span (fig. 1 element 13 and page 4 lines 23-25 and page 5 lines 20-29). Caprino does not disclose generating the ASE noise at a second input amplifier communicatively coupled to the first input amplifier responsive to detecting a failure of the first input amplifier. Arecco discloses using amplifiers in an optical communication system, including parallel switched amplifier paths, and switching to the backup second amplifier path when there

Art Unit: 2613

is a failure in a first amplifier path (fig. 2 and paragraphs 0126-0134 in light of fig. 1 and paragraphs 0069-0074). It would have been obvious to one of ordinary skill in the art at the time of the invention to duplicate the first input amplifier of Caprino as a backup second amplifier using a parallel switch coupling configuration like that of Arecco, to provide the benefit of continued constant output power when there is a failure of the first input amplifier.

Regarding claim 19, the combination of Caprino and Arecco discloses the method of claim 14 wherein generating the ASE noise at a second input amplifier comprises outputting the ASE noise at substantially the same constant output power as the first input amplifier prior to the failure of the first input amplifier (Caprino: fig. 1 and Arecco: fig. 2, as applicable in the combination, where the duplicated amplifier in the backup branch of the combination functions like the first input amplifier after the switch).

4. Claims 11 and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Caprino (WO 02/080409) in view of Arecco (US Patent Application Publication No. 2003/0194232) as applied to claims 1-10, 12-14 and 19 above, and further in view of Ishimura et al. (US Patent No. 5440418).

Regarding claim 11, the combination of Caprino and Arecco discloses the optical add/drop amplification node of claim 10 but does not disclose that the second input amplifier comprises a photodiode configured to sense light output by a monitor output of the first input amplifier. However, Arecco discloses monitoring for failure (paragraph: paragraph 0069), and Ishimura discloses monitoring the output of an optical amplifier to

Art Unit: 2613

determine amplifier failure (fig. 1 and col. 3 lines 7-15). Further, the Office takes official notice that photodiodes are well known for detecting optical signals for optical signal monitors. Also, Ishimura discloses the monitor in the amplifier itself and not in another amplifier. However, the claimed monitor being in the second amplifier, as opposed to in the first amplifier or somewhere else, is merely design choice. One of ordinary skill in the art at the time of the invention could have modified the combination, monitoring for failure of the first amplifier using a photodiode located in the second coupled to the first amplifier output, and the results would have been predictable; namely, the monitoring circuit would provide a failure indication when the first amplifier fails, for use in switching amplifiers. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combination to monitor for failure of the first amplifier using a photodiode located in the second coupled to the first amplifier output, for the predictable result of the monitoring circuit providing a failure indication when the first amplifier fails, for use in switching amplifiers.

Regarding claim 15, the combination of Caprino and Arecco discloses the method claim 14 but does not disclose monitoring the first input amplifier at the second input amplifier. However, Arecco discloses monitoring for failure (paragraph: paragraph 0069), and Ishimura discloses monitoring the output of an optical amplifier to determine amplifier failure (fig. 1 and col. 3 lines 7-15). Further, the Office takes official notice that photodiodes are well known for detecting optical signals for optical signal monitors. Also, Ishimura discloses the monitor in the amplifier itself and not in another amplifier. However, the claimed monitor being in the second amplifier, as opposed to in the first

Art Unit: 2613

amplifier or somewhere else, is merely design choice. One of ordinary skill in the art at the time of the invention could have modified the combination, monitoring for failure of the first amplifier using a photodiode located in the second coupled to the first amplifier output, and the results would have been predictable; namely, the monitoring circuit would provide a failure indication when the first amplifier fails, for use in switching amplifiers. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combination to monitor for failure of the first amplifier using a photodiode located in the second coupled to the first amplifier output, for the predictable result of the monitoring circuit providing a failure indication when the first amplifier fails, for use in switching amplifiers.

Regarding claim 16, the combination of Caprino, Arecco and Ishimura discloses the method of claim 15 wherein monitoring the first input amplifier at the second input amplifier comprises sensing light output by a monitor output of the first input amplifier (Ishimura: fig. 1 elements 7 and 10, as applicable in the modified combination as described above).

Regarding claim 17, the combination of Caprino, Arecco and Ishimura discloses the method of claim 16 further comprising detecting that the first input amplifier has failed responsive to failing to sense the light output by the monitor output (Ishimura: fig. 1 elements 7 and 10 and col. 3 lines 7-15, as applicable in the modified combination as described above).

Regarding claim 18, the combination of Caprino, Arecco and Ishimura discloses the method of claim 16 further comprising switching the second input amplifier on to

Art Unit: 2613

generate the ASE noise responsive to detecting that the first input amplifier has failed (fig. 2 and paragraphs 0126-0134 in light of fig. 1 and paragraphs 0069-0074).

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to NATHAN M. CURS whose telephone number is (571)272-3028. The examiner can normally be reached on 9:30-6:00. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/NATHAN M CURS/

Primary Examiner, Art Unit 2613